

REMARKS

Applicants amend the specification to clarify that wire 2 may be un-insulated. Support for this amendment may be found in claims 4 and 6 of Applicants' original filing. Per MPEP § 608.01(l), original claims may establish disclosure.

Applicants amend the specification to clarify that adjacent windings 300 of wire 2 wound around spool 5 touch each other. Support for this amendment may be found in Applicants' original FIGS. 1 and 3 which show excess length of wire 2 wound on a spool such that a layer of wire 2 is in direct contact with adjacent layers of wire 2.

Applicants amend the specification to clarify that adjacent windings 300 of wire 2 wound around spool 5 may short together. As noted above, wire 2 may be un-insulated and adjacent windings 300 of wire 2 wound around spool 5 touch each other. Therefore, it is implicit in Applicants' original disclosure that adjacent windings 300 of wire 2 wound around spool 5 may short together. Additionally, as noted on page 3, lines 16-18 of Applicants' specification, an aspect of Applicants' invention is to "minimize the impedance" of Applicants' grounding system. In order to minimize such impedance, adjacent windings 300 of wire 2 wound around spool 5 must short together.

Applicants amend FIG. 3 to add reference number 5 directed to the spool and reference number 300 directed to adjacent windings. No new matter has been added – reference numbers are merely added to identify features in FIG. 3 that were present in Applicants' initial filing.

Having noted the Examiner's comment regarding 35 U.S.C. § 103(a), Applicants address 35 U.S.C. § 103 rejections. The Examiner rejects claims 1, 3-9, 11-18, and 20-30 under 35 U.S.C. § 103(a) as being unpatentable over Godwin U.S. Patent No. 3,453,493 in view of Peterson U.S. Patent No. 4,940,859. Applicants amend claims 1, 5-9, 11-12, 16-18, 22-24 and 29-30. Applicants cancel claims 3-4, 13-15, and 20-21. Applicants add claims 31-33. All pending claims should now be allowable.

Regarding claims 1, 8, 12, and 18, a purpose of Applicants' apparatus is to minimize grounding system impedance, including at lightning frequencies. Applicants' apparatus minimizes impedance in part by minimizing the length of a grounding cable 2 via a take-up reel 1. Grounding cable 2 is un-insulated for the purposes of claims 1, 8, 12, and 18. Excess length

of the un-insulated grounding cable 2 is wound around a spool 5 on Applicants' take-up reel 1. See pages 3-4, lines 25-2 of Applicants' specification and FIG. 3 for support. Because Applicants' grounding cable 2 is un-insulated, the excess length of the grounding cable 2 shorts together as the excess length is wound on Applicants' take-up reel 1. See Fig. 3 which shows the excess length of cable 2 wound around a spool 5 – the excess length of cable 2 thereby shorts together. Consequently, the impedance associated with unused grounding cable 2 is minimized. Applicants' apparatus also minimizes impedance through the use of low impedance cable 2.

Godwin discloses a grounding system comprising two cables of fixed length. Godwin, col. 2, lines 15-22. The purpose of Godwin's system is to reduce static on fuel tank components – not dissipate lightning induced charge. Godwin, col. 1, lines 54-56. In contrast to Applicants' apparatus, Godwin does not teach minimizing system impedance at lightning or any other frequencies. Godwin does not disclose impedance minimizing measures such as Applicants' cable take-up assembly or Applicants' low impedance cable.

Peterson comprises a portable telephone take-up reel. Peterson, col. 1, lines 5-8. The purposes of Peterson's take-up reel are to allow a telephone user greater mobility while preventing problems associated with unsecured long telephone cords such as unsightliness, entanglement, and tripping hazards – not to minimize grounding system impedance. *See* Peterson, col. 1, lines 5- 40.

Furthermore, Peterson's take-up reel has no mechanism to minimize cable impedance. Peterson's take-up reel comprises a predetermined length of telephone cord. Peterson, col. 2, lines 48-51. It is well known in the art of telephony that a telephone circuit comprises at least two electrically isolated nodes (e.g. ring and tip). Therefore, in order to prevent electrically isolated telephone wires from shorting, Peterson's telephone cord must be electrically insulated. Consequently, Peterson's telephone cord will not short together when wound on Peterson's take-up reel assembly. As a result, the impedance of Peterson's telephone cord is not reduced by use of Peterson's take-up reel.

Additionally, Peterson's take-up reel is intended manage the length of a telephone cord – not ground cable. Peterson, col. 1, lines 5-40. It is well known in the art of telephony that telephone cable consists of relatively high gage wire. Consequently, telephone cable has a relatively high impedance and performs poorly as a ground cable. In contrast, Applicants'

grounding cable comprises relatively low gauge, low impedance cable, such as 480/30 flat braided copper wire.

In summary, Godwin teaches a system to reduce static and Peterson discloses a system to provide a telephone user greater mobility. Neither Godwin nor Peterson teach methods to reduce grounding system impedance, wherein cable wound on a spool shorts together. Furthermore, Peterson's apparatus does not operate as a grounding system of any sort. Consequently, there is no suggestion or motivation in Godwin, Peterson, or in the knowledge generally available to one of ordinary skill in the art of grounding, to combine Peterson with Godwin to produce Applicants' apparatus.

Additionally, Applicants respectfully assert that upon consideration of secondary considerations, all pending claims should be allowable. Secondary considerations such as commercial success, unexpected results, failure of others, copying, licensing, and skepticism of experts must be considered in any case when they are present.

Applicants hereby submit *Revised Declaration of Non-Obviousness Pursuant to 37 CFR § 1.132*, by Roy B. Carpenter, Jr., Chief Executive Officer of Lightning Eliminators & Consultants, Inc. ("LEC") and co-inventor of the claimed invention. In Mr. Carpenter's Declaration, he states that LEC's *Retractable Grounding Assemblies™*, which are sold to companies such as Shell Oil, Mobile Oil Inc. etc., directly correspond to the invention claimed in the referenced patent application.

As indicated in Mr. Carpenter's Declaration, LEC's *Retractable Grounding Assemblies™* have fulfilled a long-felt need in the oil storage industry. There is objective evidence that a recognized problem has existed in the oil storage industry for a long period of time without solution. Those of ordinary skill in the art have recognized that shunts provide inadequate contact to prevent arcing and sparking. This long-felt need has not been satisfied by anyone else in the industry, despite constant attempts to do so. Applicants' invention satisfies this long-felt need.

With respect to the remaining claims, these claims directly or indirectly depend on amended base claims 1, 8, 12, or 18. Therefore, the remaining claims should now be allowable.

Applicants respectfully request the Examiner to enter the above amendments and pass this application to allowance.

Respectfully submitted,



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Amendments to the Drawings

Pursuant to revised 37 CFR 1.121(d), Applicants present revised FIG. 3 labeled as “Replacement Sheet”. Changes to FIG. 3 are explained in the “Remarks” section of this amendment. No new matter has been added. Applicants also present a marked-up of copy of FIG. 3 labeled “Annotated Sheet” for the Examiner’s convenience.

Title: Grounding System for Floating Roofs in
Flammable Storage Tanks
Applicant: Carpenter et al.
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Annotated Sheet

